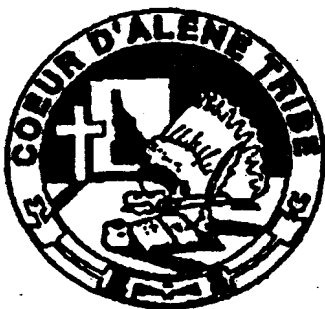


APPENDIX K

Coeur d'Alene Lake Management Plan - Executive Summary

COEUR D'ALENE LAKE MANAGEMENT PLAN

Coeur d'Alene Tribe



**Clean Lakes
Coordinating Council**



**Idaho Division of
Environmental Quality**



COEUR D'ALENE LAKE

MANAGEMENT PLAN

Kootenai, Benewah and Shoshone Counties, Idaho

Approval, Recommendation, Policy Statements and Comments

The Clean Lakes Coordinating Council approves and recommends the Coeur d'Alene Lake Management Plan to the county commissions and the Coeur d'Alene Tribal Council. The council provides these additional policy statements and comments:

- That the Clean Lakes Coordinating Council is empowered to coordinate the implementation of the plan;
- That the council does not promote or support land use that degrades water quality, but encourages those land uses that protect this valuable resource;
- That recognizing that the timber and surface mining industries are the only land users which have mandatory best management practices (BMPs), we recommend that reasonable and mandatory BMPs be developed for other land users;
- That recognizing that each waterbody has somewhat different chemical characteristics, the council recommends that site specific water quality criteria be developed for the lake as funding permits.

Susan MacLeod 3-19-96 Robert Hammes 3-19-96

Susan MacLeod, Chairperson Date ~~Robert~~ Hammes

Date

Orland P. Scott 3/19/96 Robert Hall 3/19/96

Dr. Orland P. Scott

Date

Robert Hall

Date

Bill Seaton 3/19/96

Bill Seaton

Date

COUNTY COMMISSIONS APPROVAL

ACCEPTED BY THE BENEWAH COUNTY BOARD OF COMMISSIONERS:

Jack Buell

Date

George Mills Jr.

Date

N.L. (Bud) McCall

Date

ACCEPTED BY THE KOOTENAI COUNTY BOARD OF COMMISSIONERS:

Dick Compton 9/19/96 Dick Panabaker 9/19/96
Dick Compton Date 9/19/96 Dick Panabaker Date 9/19/96

Bob Macdonald 9/19/96
Bob Macdonald Date 9/19/96

ATTEST

DANIEL J. ENGLISH, CLERK

BY: Sherry Krulitz
Deputy Clerk

ACCEPTED BY THE SHOSHONE COUNTY BOARD OF COMMISSIONERS:

Sherry Krulitz 4/22/96
Sherry Krulitz Date

Jack King 4-22-96
Jack King Date

R. Gary Waters 4/22/96
R. Gary Waters Date

COEUR D'ALENE TRIBE APPROVAL
of the
COEUR D'ALENE LAKE MANAGEMENT PLAN

ACCEPTED BY THE COEUR D'ALENE TRIBE:

 7/8/96
Ernest L. Stensgar, Chairman Date

Resolution Number CDA 215-A (96)

APPROVAL OF LAKE MANAGEMENT PLAN

CDA Resolution 215(96)-4

WHEREAS, the Coeur d'Alene Tribal Council has been empowered to act for and on behalf of the Coeur d'Alene Tribe, pursuant to the Revised Constitution and By-Laws, adopted by the Coeur d'Alene Tribe by referendum, November 10, 1984, and approved by the Secretary of the Interior, Bureau of Indian Affairs, December 21, 1984; and

WHEREAS, the Coeur d'Alene Tribe assisted in the development of the Coeur d'Alene Lake Management Plan; and

WHEREAS, the management plan for Lake Coeur d'Alene is in its final format and has been reviewed by the Tribal staff and now requires acceptance by the Coeur d'Alene Tribal Council; and

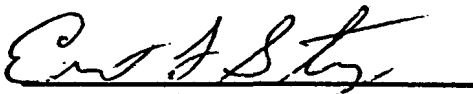
WHEREAS, the Coeur d'Alene Tribal Natural Resource Department recommends approval by the Tribal Council.

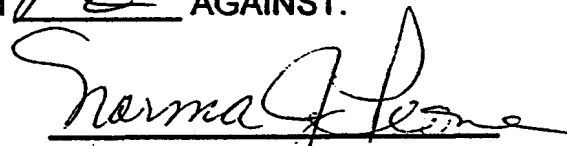
NOW THEREFORE BE IT RESOLVED, the Coeur d'Alene Tribal Council accepts the recommendation of the Natural Resource Department and approves the management plan prepared for Lake Coeur d'Alene; and,

FURTHER BE IT RESOLVED, that the Coeur d'Alene Tribal Council authorizes the Chairman to sign the Lake Management Plan for Coeur d'Alene Lake.

CERTIFICATION

The foregoing resolution was adopted at a meeting of the Coeur d'Alene Tribal Council held at the Tribal Headquarters, near Plummer, Idaho on June 27, 1996, with the required quorum present, by a vote of 6 FOR and 0 AGAINST.


Ernest L. Stensgar, Chairman
Coeur d'Alene Tribal Council


Norma Peone, Secretary
Coeur d'Alene Tribal Council

ACKNOWLEDGEMENTS

The Coeur d'Alene Lake Management Plan was developed through the combined efforts of citizens and governmental agencies coordinated under the umbrella of the Coeur d'Alene Basin Restoration Project. The core planning team included representatives of the commissions of Benewah, Kootenai and Shoshone Counties, the Clean Lakes Coordinating Council, Coeur d'Alene Tribe, Idaho Division of Environmental Quality and U. S. Geological Survey.

Scoping and informational meetings as well as a monthly newsletter were organized by the public involvement coordinators of the Coeur d'Alene Basin Restoration Project and Idaho Division of Environmental Quality. Several members of the Citizen's Advisory Committee of the Coeur d'Alene Basin Restoration Project gave informational talks on the lake and the planning effort to numerous business groups and civic organizations. The technical advisory groups which developed the plan's action items were facilitated by staff of the Clean Lakes Coordinating Council, Coeur d'Alene Basin Restoration Project, Coeur d'Alene Tribe, Idaho Division of Environmental Quality and Panhandle Health District.

Agency and citizen participants in the technical advisory groups numbered over eighty. These agencies and individuals are listed in Appendix A of the plan.

FORWARD

Participation of the Coeur d'Alene Tribe in the development and implementation of this lake plan is part of the Tribe's involvement as one of the three sovereign powers in the Coeur d'Alene Basin Restoration Project. As documented in the Memorandum of Understanding (MOA) between the U.S. EPA, State of Idaho and Coeur d'Alene Tribe, October 29, 1992, all three parties recognize that each reserves all rights, powers and remedies by statute, treaty and otherwise. As derived from various legal and treaty remedies, the Coeur d'Alene Tribe retains its long standing claim in law over the bed and banks of Coeur d'Alene Lake.

Neither the Coeur d'Alene Lake Plan nor any action pursuant to the plan shall be construed as an admission by the Tribe as to the respective rights or legal authority of the Tribe with respect to Coeur d'Alene Lake's waters, bed or banks. This lake plan is intended to facilitate joint action and inter-governmental coordination among the parties, and neither creates any rights nor gives rise to any right of judicial review.

COEUR D'ALENE LAKE MANAGEMENT PLAN

EXECUTIVE SUMMARY

INTRODUCTION

The lake management study was initiated in 1991 in response to long-term concerns over water quality degradation. These concerns centered around increases in nutrients, which resulted in increased plant growth, decreased water clarity and heavy-metal contamination of lakebed sediments. The study was funded and conducted cooperatively by the U.S. Geological Survey, Idaho Division of Environmental Quality, and Coeur d'Alene Tribe. It had three objectives:

- 1) Determine the lake's ability to receive and process nutrients (phosphorus and nitrogen) in order to devise means to prevent declines in water quality;
- 2) Determine the potential for the release of heavy metals from lakebed sediments into the overlying lake water; and
- 3) Develop a lake management plan that will identify actions needed to meet water quality goals.

The agencies cooperating to develop the Lake Coeur d'Alene Management Plan sought to develop a comprehensive plan addressing water quality and non-water quality issues. A comprehensive treatment of water quality issues was developed, but recreational, access, aesthetic and use issues were not fully addressed. The body of this document is Part

1 of the plan addressing water quality. Part 2 of the plan requires further development although some action items addressing non-water quality problems were developed by the technical advisory groups who developed part 1 of the plan.

WATER QUALITY MANAGEMENT ZONES AND GOALS

Viewed as a whole, Coeur d'Alene Lake exhibits relatively high water quality. Yet both the study data and public and agency perceptions reveal specific geographical areas of concern and specific water quality problems. It is not appropriate to apply a single management strategy to the entire lake and watershed. Therefore, the lake has been divided into four water quality management zones. Each zone focuses on specific issues, goals, and management approaches pertinent to that zone. The four zones are:

- 1) **Nearshore** (water depths less than 20 feet)
- 2) **Shallow, southern lake** (south of the mouth of the Coeur d'Alene River and including the shallow lakes such as Benewah, Chatcolet, Hidden, and Round)
- 3) **Lower rivers** (lower reaches of the St. Joe and Coeur d'Alene Rivers that are affected by backwater from the lake)
- 4) **Deep, open water** (north of the mouth of the Coeur d'Alene River)

Water quality issues within the **nearshore management zone** include, but are not limited to: excessive growth of microscopic

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lake's phytoplankton production markedly increase? If the answer to the question is affirmative, then nutrient loadings would need to be reduced, perhaps significantly, in order to counteract the lifting of zinc's suppressive effect on phytoplankton production.

TRENDS IN LAKE WATER QUALITY

Despite the issues and concerns listed, Coeur d'Alene Lake's water quality has improved during the last 15-20 years. This positive trend is attributable to the enactment of environmental laws by federal, state, and local governments, and a growing societal awareness of environmental issues. Settling ponds for mining and smelting wastes were installed in the late 1960's and effective sewage treatment began in the Silver Valley in the mid-1970's and into the 1980's. State and local standards for subsurface sewage disposal were also made more stringent. State laws now require the use of best management practices (BMPs) for reducing water quality effects of timber harvest activities. Encouraged by economics, as well as by state and federal programs, agricultural practices that reduce erosion and sedimentation have also come into more widespread use. All of these factors, along with a growing environmental awareness and the transition to an economy less dependent on natural resources extraction, have contributed to the recent improving trend in water quality in Coeur d'Alene Lake.

Coeur d'Alene Lake has become visibly "cleaner" in recent years, but the potential exists for serious and widespread water quality degradation given present trends in population growth and lake use, coupled with the extent of past pollution. Significant

depletion of dissolved oxygen still occurs in deep, bottom waters during the late summer. The shallow, southern lake area and several bays are becoming shallower because of sediment eroded from agricultural and timber lands as well as from nearshore areas being developed for residential and recreational uses. Southern lake waters are becoming infested with aquatic plants. Excessive growth of attached algae can be seen on shoreline rocks, docks, and boats in some nearshore areas. Sewage treatment facilities in the basin still contribute a significant portion of the lake's potentially controllable nutrient load. The bed and banks of the lower reaches of the Coeur d'Alene and St. Joe Rivers continue to be eroded and transport heavy loads of sediment and nutrients into the lake. Much of the bottom of the lake is blanketed with sediment containing high levels of heavy metals as well as substantial amounts of nutrients. Contaminated wastes from past mining in the Coeur d'Alene River drainage continue to flow into the lake in sizeable amounts. Perhaps the greatest threat to Coeur d'Alene Lake is the potential for reversal of the recent improvements in water quality. Such a reversal could be brought on by the rapid increases in lake use, population growth, and land development now occurring throughout the basin. Unless preventative measures are initiated soon, the recent improvements in lake water quality could be eroded or lost.

RECOMMENDED MANAGEMENT ACTIONS

The public was involved in the lake management planning process via its participation on the following five technical advisory groups (TAGs): forest practices, agriculture, development (with a recreation

subgroup), southern lake, and rivers. Each TAG considered water quality issues and management goals and then developed management actions to achieve those goals. About 80 people participated. They represented local, state and federal agencies, industry, environmental organizations, and community and business associations. The management actions developed by the TAGs were then applied to the appropriate water quality management zones.

Management goals for the nearshore zone is to be achieved with management actions developed by the TAGs for forest practices, agriculture, and development. The majority of these management actions involve application of BMPs to control erosion from small watersheds that feed the lake. Reductions will also be sought for nutrient inputs from nearshore domestic septic systems and municipal wastewater treatment plants.

Within the shallow, southern lake zone, management goals can be achieved by reducing the nutrient loads within the lakebed sediments, contributed by watersheds plus erosion of riverbanks and lakeshores. Mechanical harvesting can be employed to periodically remove nutrients contained in the abundant aquatic macrophytes which grow in this zone. Nutrient loads from contributing watersheds can be reduced by application of BMPs on agricultural and forested lands. Additional reductions can be gained by upgrading several municipal wastewater treatment plants that contribute nutrient loads to this zone. To reduce erosion of riverbanks and the lakeshores, the southern lake TAG suggests establishment of "no wake" zones and management of boat traffic within this zone.

The management goals for the lower rivers zone will be achieved by reducing accelerated riverbank erosion by 25 percent in the St. Joe River and by 50 percent in the Coeur d'Alene River over the next decade. After acquiring better knowledge on the location and severity of erosion, bank stabilization projects can be undertaken, probably with assistance from the Army Corps of Engineers. Educational materials will be developed to inform boat operators of ways they can reduce their negative impacts on riverbanks. Landowners will be informed of riverbank stabilization methods they can employ which have been approved by the Corps of Engineers.

The deep, open water zone integrates the water quality effects of natural and human influences throughout the basin. Management goals for this zone will be achieved partially by management actions undertaken within the other three zones; however, the majority of the lake's nutrient loading comes from the Coeur d'Alene and St. Joe River basins. Within these two basins, important management actions to be implemented include erosion control from forested lands and reductions in nutrient loadings from municipal wastewater treatment plants. Formation of a lake basin commission is suggested as a means to coordinate the diverse, incremental efforts that will be required to achieve the long-term goals of the lake management plan.

Numeric Values for current, desired, and criteria/standards-based water quality conditions in the deep, nearshore management zone.

	Desired Condition ¹¹	Current Condition ¹	Standard or Recommended Level ¹⁰
Dissolved Oxygen (mg/L) ²	8.6	8.6	6.0 ³
Total P (μg/L)(ppb) ²	5-10	5.0 ⁸	25.0
Zinc (μg/L)(ppb) ²	32.7	56	32.7
Clarity (Secchi depth meters)	7.6	7.6 ⁴	none
Coliform bacteria	500/100 ml	-	500/100 ml ⁵
	200/100 ml	-	200/100 ml ⁶
	50/100 ml	-	50/100 ml ⁷

1. Average condition of 19 bays unless otherwise noted.
2. Seven-day average.
3. Standard applies to all waters except the lowest 7 meters of the water column at depths greater than 35 meters.
4. Average of 19 bays 7.6 meters; worst case Fuller's 5.2 meters.
5. At any time.
6. In no more than 10% of the samples taken over a 30 day period.
7. Geometric mean of samples taken over a 30 day period.
8. Average total phosphorus for 19 bays over two years; worst case, Kidd Island Bay, 16 μg/L.
9. Average of 19 bays; worst case Kidd Island Bay, 150/100ml.
10. Standard based Idaho Water Quality Standards and wastewater treatment requirements, EPA "Gold Book" criteria (as interpreted by National Toxic Rule) or phosphorus levels recommended to prohibit nuisance aquatic weed growth.
11. Based on interpretation of Idaho Antidegradation policy and special resource waters designation of Lake Coeur d'Alene.
12. Trace (heavy) metals criteria are based on the hardness (mg/L CaCO₃) of the waterbody for which it is applied. The criteria is calculated as a function of the exponential of the logarithm of the hardness value. The National Toxic Rule and proposed Idaho water quality standards for metals operate in a hardness range of 25 to 400 mg/L CaCO₃ (Federal Register 57: 246, 1/22/92, 60917). The zinc goal developed for drafts of the Coeur d'Alene Lake Management Plan was calculated to be 18.4 μg/L based on the incorrect use of the lake hardness which averages 19 mg/L. Based on the National Toxics Rule, under which Idaho is currently listed, and proposed Idaho water quality standards, the criteria should be calculated at a hardness of 25 mg/L CaCO₃. The correct zinc criteria is 32.7 μg/L.

Numeric Values for current, desired, and criteria/standards-based water quality conditions in the shallow, southern-lake management zone.

	Desired Condition ⁶	Current Condition ¹	Standard or Recommended Levels
Dissolved Oxygen (mg/L) ²	8.4	8.4	6.0
Total P ($\mu\text{g/L}$) ²	12.0	18.3 ⁴	25.0 ⁵
Zinc ($\mu\text{g/L}$)(ppb) ^{2,3}	32.7	39.0	32.7
Clarity (Secchi depth meters)	4.0	3.0	none

1. Average of Chatcolet and Blue Point Stations unless otherwise noted.
2. Seven-day average.
3. Applies to area of southern lake north of Conkling Point.
4. Average total phosphorous = $18.3 \mu\text{g/L}$; worst case Chatcolet Lake $26.9 \mu\text{g/L}$.
5. Standard based on Idaho water quality standards and wastewater treatment requirements, EPA "Gold Book" criteria (as interpreted by National Toxic Rule) or phosphorus levels recommended to prohibit nuisance aquatic weed growth.
6. Based on interpretation of Idaho Antidegradation policy and special resource water designations of Lake Coeur d'Alene.

Numeric Values for current, desired, and criteria/standards-based water quality conditions in the deep, open-water management zone.

	Desired Condition ⁹	Current Condition ¹	Standard or Recommended Level ⁸
Dissolved Oxygen (mg/L) ²	7.0	7.0	6.0 ³
Total P (μg/L)(ppb) ²	9.0	9.0	25.0
Zinc (μg/L)(ppb) ²	32.7	143	32.7
Clarity (Secchi ² depth meters)	6.0	6.0 ⁴	none
Coliform bacteria	500/100 ml	-	500/100 ml ⁵
	200/100 ml	-	200/100 ml ⁶
	50/100 ml	-	50/100 ml ⁷

1. Average of values of Tubbs Hill, Wolf Lodge, Driftwood and University Point Stations.
2. Seven-day average.
3. Standard applies to all waters except the lowest 7 meters of the water column at depths greater than 35 meters.
4. Worst case during winter runoff at University Point, Station 1.0 meters.
5. At any time.
6. In no more than 10% of the samples taken over a 30 day period.
7. Geometric mean of samples taken over a 30 day period.
8. Standard based on Idaho water quality standards and wastewater treatment requirements EPA "Gold Book" criteria (as interpreted by National Toxic Rule) or phosphorus levels recommended to prohibit nuisance aquatic weed growth.
9. Based on interpretation of Idaho Antidegradation policy and special resource water designation of Lake Coeur d'Alene.